

WHAT IS CLAIMED IS:

1. A stepping motor comprising:

a plurality of coils for switching a direction of magnetism generated by switching electrification;

a stator including a plurality of stator iron cores, for forming a magnetic pole by integrating magnetism generated by each of the coils;

a rotor adapted to hold a permanent magnet, and rotated by attraction/repulsion between the permanent magnet and a magnetic pole of each of the stator iron cores;

a housing provided to integrally cover the stator and the rotor; and

an output shaft gear formed in an output shaft of the rotor, and connected to a gear to be driven, of a member to be driven,

wherein the number of teeth for the output shaft gear is set to a predetermined ratio with respect to the number of magnetically stable points per rotation of the rotor, in order to hold said member to be driven in a reference position when the coil is electrified by a regulated electrification pattern.

2. The stepping motor according to claim 1, wherein the number of magnetically stable points per rotation by one electrification pattern is obtained by the following equation:

$$\begin{aligned} &(\text{number of magnetically stable points per rotation by} \\ &\text{one electrification pattern}) = (\text{total number of} \\ &\text{claws of stator iron core}) + (2 \text{ poles, N and S, of} \\ &\text{stator iron core}) + (2 \text{ phases, upper and lower, of} \\ &\text{stator iron core}) \end{aligned}$$

wherein, the 2 poles, N and S, of the stator iron core are fixed values of 2.

3. The stepping motor according to claim 1, wherein

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the number of teeth for the output shaft gear is set equal to the number of magnetically stable points per rotation of the rotor.

4. The stepping motor according to claim 1, wherein the output shaft of the rotor and the output shaft gear are formed to be integral.

5. The stepping motor according to claim 1, wherein the output shaft gear is made of a resin material.

6. The stepping motor according to claim 1, wherein the output shaft gear is made of a metallic material.

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